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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR  | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|-----------------------|---------------------|------------------|
| 09/925,194   | 08/08/2001  | Thomas Jefferson Awad | S01448/0000 JNA     | 4327             |
| 23628  | 7590        | 08/26/2004            | EXAMINER            |                  |
| WOLF GREENFIELD & SACKS, PC<br>FEDERAL RESERVE PLAZA<br>600 ATLANTIC AVENUE<br>BOSTON, MA 02210-2211 |             |                       |                     | DO, CHAT C       |
| ART UNIT   |             | PAPER NUMBER          |                     |                  |
| 2124   |             |                       |                     |                  |

DATE MAILED: 08/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                        |                     |  |
|------------------------------|------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                              | 09/925,194             | AWAD ET AL.         |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                              | Chat C. Do             | 2124                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

**A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.**

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on 8/8/01; 12/18/02; 11/10/03; 03/19/04.  
 2a) This action is **FINAL**.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-21 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-3,7-9,13-15 and 19-21 is/are rejected.  
 7) Claim(s) 4-6,10-12 and 16-18 is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 08 August 2001 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>attached</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Information Disclosure Statement***

1. The information disclosure statement filed 08/08/01 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each publication or that portion, cited under other art section, which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

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### ***Specification***

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

3. The abstract of the disclosure is objected to because the abstract exceeds 150 words in length. Correction is required. See MPEP § 608.01(b).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-3, 7-9, 13-15, and 19-21 are rejected under 35 U.S.C. 103(a) as being obvious over Lu (U.S. 6,768,796) in view of Makinen et al. (E.P. 0872962A2).

Re claim 1, Lu discloses in Figures 7-8 a filter adaptation unit suitable for producing a set of filter coefficients, filter adaptation unit (abstract) comprising: a) first input ( $x\{n\}$ ) for receiving a sequence of samples of a first signal; b) a second input ( $x\{n\}$  in Figure 8) for receiving a sequence of samples of second signal, the second signal including a certain component which is correlated to the first signal; c) third input ( $e\{n\}$ ) for receiving a first set of error characterization data elements associated to a first set of filter coefficients, first set filter coefficients being such that when the first set of filter coefficients applied by an adaptive filter on the first signal, a first estimate of the certain component the second signal generated, the certain component being correlated the first signal; d) a coefficient generation unit (460) operatively coupled to first input and second input, coefficient generation unit being operative generate a second set of filter coefficients at least part on the basis of first and second signals; e) an error characterization unit (the filter part in Figure 8 to generate a second set of error coefficients based on the coefficient generator) operative for processing the first signal and the second signal on the basis of the second set of filter coefficients generate second

set of error characterization data elements associated to the second set of filter coefficients; g) an output (output speech) for releasing a signal indicative of the set of filter coefficients selected by the selection unit. Lu fails to disclose a selection unit for selecting one of first set of filter coefficients and second set of filter coefficients at least part on the basis of the first set of error characterization data elements and the second set of error characterization data elements. However, Makinen et al. disclose a Figure 4 a selection unit (80) for selecting one of first set of filter coefficients and second set of filter coefficients at least part on the basis of the first set of error characterization data elements (EST1) and the second set of error characterization data elements (EST2).

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Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention is made to add a selection unit for selecting one of first set of filter coefficients and second set of filter coefficients at least part on the basis of the first set of error characterization data elements and the second set of error characterization data elements as seen in Makinen et al.' Figure 4 into Lu's invention because it would enable to optimize the system performance by selecting a right set of error which model the physical environment.

Re claim 2, Lu further discloses in Figures 7-8 each error characterization data element in the second set of error characterization data elements is associated a respective frequency band selected from set of frequency bands (470-490).

Re claim 3, Lu further discloses in Figures 7-8 error characterization unit is operative for: a) filtering (402) the first signal on the basis of the second set of filter coefficients to derive a second estimate of the certain component the second signal, the

certain component being correlated the first 20 signal; b) removing (406) from the second signal the second estimate the certain component to generate a noise signal; c) processing (460) the noise signal and the first signal generate the second set of error characterization data elements.

Re claim 7, it is a method claim of claim 1. Thus, claim 7 is also rejected under the same rationale as cited in the rejection of rejected claim 1.

Re claim 8, it is a method claim of claim 2. Thus, claim 8 is also rejected under the same rationale as cited in the rejection of rejected claim 2.

Re claim 9, it is a method claim of claim 3. Thus, claim 9 is also rejected under the same rationale as cited in the rejection of rejected claim 3.

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Re claim 13, it is a medium claim of claim 1. Thus, claim 13 is also rejected under the same rationale as cited in the rejection of rejected claim 1.

Re claim 14, it is a medium claim of claim 2. Thus, claim 14 is also rejected under the same rationale as cited in the rejection of rejected claim 2.

Re claim 15, it is a medium claim of claim 3. Thus, claim 15 is also rejected under the same rationale as cited in the rejection of rejected claim 3.

Re claim 19, it is a system claim of claim 1. Thus, claim 19 is also rejected under the same rationale as cited in the rejection of rejected claim 1.

Re claim 20, it is an application claim of claim 1. Thus, claim 20 is also rejected under the same rationale as cited in the rejection of rejected claim 1. Lu discloses in Figures 7-8 the adaptive system is used in canceller (abstract).

Re claim 21, it is a means claim of claim 1. Thus, claim 21 is also rejected under the same rationale as cited in the rejection of rejected claim 1.

***Allowable Subject Matter***

6. Claims 4-6, 10-12, and 16-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. U.S. Patent No. 6,744,886 to Benesty et al. disclose an adaptive filter utilizing proportional affine projection algorithm.
- b. U.S. Patent No. 6,035,312 to Hasegawa discloses an adaptive filter.
- c. U.S. Patent No. 6,396,872 to Sugiyama discloses an unknown system identification method by subband adaptive filters and device thereof.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chat C. Do whose telephone number is (703) 305-5655. The examiner can normally be reached on M => F from 7:00 AM to 4:30 PM.

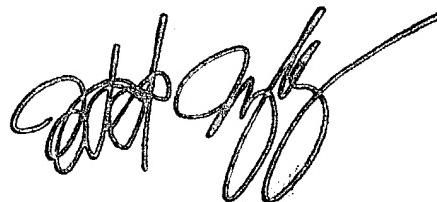
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chaki Kakali can be reached on (703) 305-9662. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chat C. Do  
Examiner  
Art Unit 2124

August 19, 2004

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TODD INGERSIA  
PRIMARY EXAMINER